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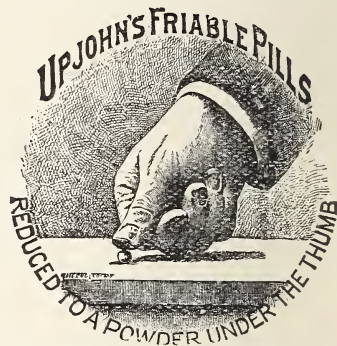
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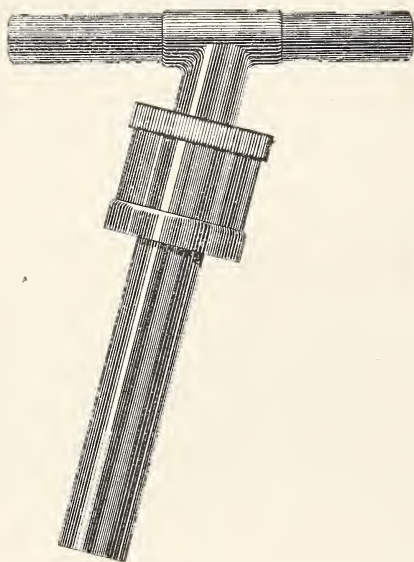
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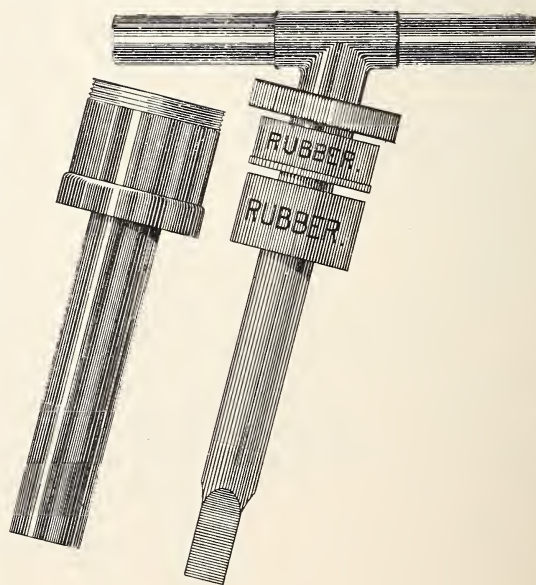
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Professor of Chemistry in the Bellevue Hospital Medical College, New York.

NEW YORK, December 3, 1896.

*Dr. E. C. LAIRD, Resident Physician,
Buffalo Lithia Springs, Va.*

Dear Doctor :—

I have received the five collections of **Disintegrated Calculi**, each collection containing a number of fragments, and also the three boxes, each containing a single Calculus, mentioned in your letter as discharged by different patients while under treatment by the **BUFFALO LITHIA WATER, Spring No. 2.**

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One of Calculi from collection marked "A" was $\frac{3}{16}$ of an inch in diameter, of an orange color, and on section exhibited a nucleus surrounded by nine concentric layers of a crystalline structure. On chemical analysis it was found to consist of **Uric Acid** (colored by organic substances from the urine), with traces of Ammonium Urate and Calcium Oxalate. A fragment of a broken down Calculus from the same collection was found to consist of **Uric Acid**.

One of the fragments taken at random from the collection marked "B" which was still more disintegrated than the preceding one, proved on analysis to be composed chiefly of **Urid Acid** and Ammonium Urate, with a trace of Calcium Oxalate.

The contents of the boxes marked "C" consisted chiefly of whitish Crystalline materials. On microscopic examination they exhibited well defined and prismatic crystals, characteristic of "Triple Phosphate." On chemical analysis they were found to consist of Magnesium and Ammonium Phosphate (triple phosphate), Calcium Phosphate, Calcium Carbonate a trace, Sodium and Potassium Salts in traces, Uric Acid and Urates none, Calcium Oxalate none, Organic debris in considerable quantity, and matters foreign to Calculi.

The fragments of Calculi in the collection marked "D" were numerous, and of sizes varying from small fragments to $\frac{7}{8}$ inches in length, $\frac{3}{16}$ inches in width and $\frac{1}{16}$ inches in thickness. Some of the fragments were white and others were gray in color. On chemical analysis they were found to consist partly of the variety known as "Fusible Calculus," Ammonium and Magnesium Phosphate with Calcium Phosphate also, Calcium Phosphate, Calcium Carbonate in traces, Calcium Oxalate in traces, Uric Acid in traces and Organic matter.

The Calculus in collection marked "E" were nodulated and nearly spherical in shape, consisting of Crystalline layers from $\frac{3}{8}$ to $\frac{1}{4}$ of an inch in diameter. They were of a brown color, and on analysis were found to be chiefly Uric Acid, with some Ammonium Urate and traces of Organic matter.

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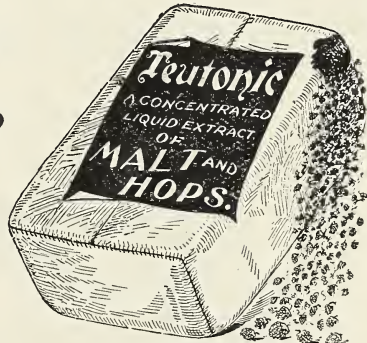
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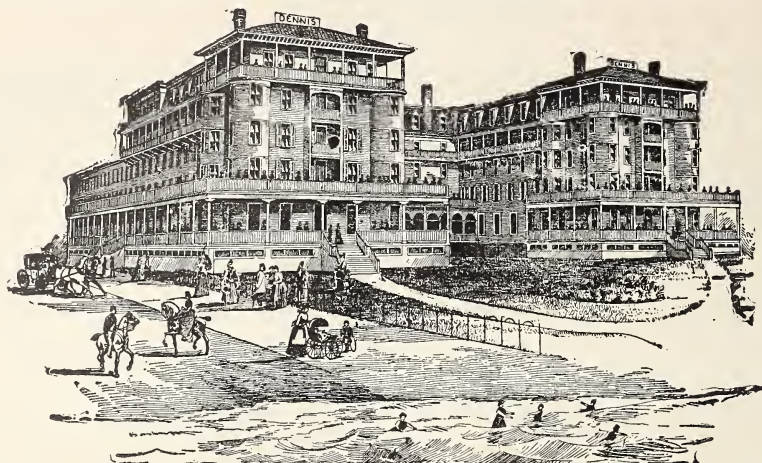
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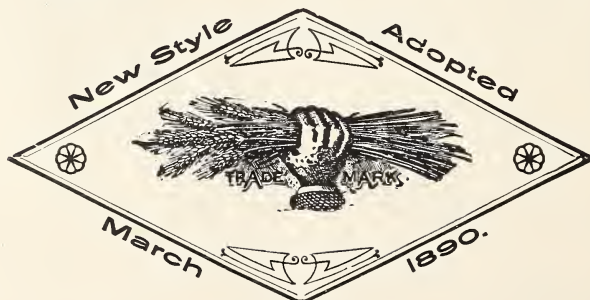
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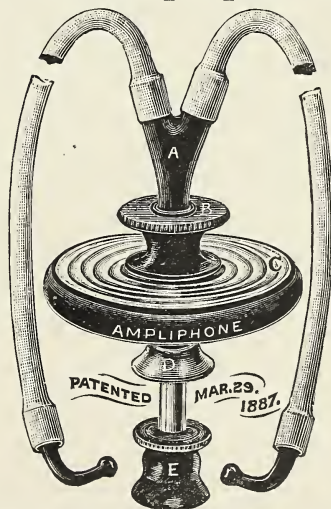
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MARYLAND MEDICAL JOURNAL

A Weekly Journal of Medicine and Surgery.

VOL. XXXVI.—No. 23. BALTIMORE, MARCH 20, 1897. WHOLE No. 834

Original Articles.

A STUDY OF BUBONIC FEVER.

By C. W. Chancellor, M. D.,
United States Consul at Havre, France.

UNDER the control of sanitary science, the Black Death or Plague which almost depopulated London in the fourteenth and seventeenth centuries and Marseilles in the nineteenth century has changed both its character and its name. It is no longer the Black Death nor even the Plague, but "Bubonic Fever." If the memories of that medieval scourge of mankind are growing faint in Europe, the peoples of Asia have during the past half-century been repeatedly subjected to its horrors.

In the spring of 1830 people were dying of it, in the city of Bagdad alone, at the rate of two thousand per day, and in one day, "the twenty-first of April, no fewer than thirty thousand dead bodies were counted of persons who had perished within the town." It appeared on the banks of the Euphrates in 1867 and 1873, in Persian Kurdistan in 1871, in Bagdad in 1877 and in Hong Kong a few years ago, not to speak of its more terrible devastation within the Celestial Empire; and since the outbreak of the pestilence in Bombay, about four months ago, there have been over six thousand cases and not less than five thousand deaths.

The medical history of the plague or bubonic fever in the Western Capital of India will form a memorable episode in the struggle of science with disease. One lesson apparently taught by the out-

break is that the best chance of staying its progress is to strictly segregate the cases; yet the rules drawn up for this purpose could not be enforced owing to the imperious demands of caste. Another lesson is that pestilence is fostered by a condition of filth and that poverty and famine are redoubtable agents for the extension of the epidemic, while the principal sufferers from it are individuals placed in a condition of morbid receptivity by hunger and entire lack of hygiene.

An investigation has been started for the purpose of ascertaining how the plague reached Bombay, but as is customary on such occasions, the result is a long time in forthcoming. As far back as last September the death rate had begun to increase considerably in the quarters of the city, near the docks and port, where a few days before a ship had arrived from China loaded with goods that were no doubt infected. The first cases were represented to be typho-malarial fever, but as the deaths became more numerous, the board of health announced that it was plague they were dealing with. For a whole month, therefore, the epidemic had been spreading without hindrance and the entire city was already contaminated, when, on October 2, the necessary measures were first taken to prevent its diffusion. Then a panic ensued and the population

left Bombay in masses, carrying the germs in every direction; and it now seems probable that the entire province of Bombay will be contaminated, as well as adjacent districts. Without awaiting the result of the investigation as to how the disease reached Bombay, it can be asserted that it developed in British India for two reasons: First, because too much leniency was shown in admitting ships coming from the south of China, which was known to be contaminated; second, because, by not recognizing the disease or concealing its nature, an opportunity was given it to take a firm hold. The plague was known to exist in China and this fact ought to have awakened attention.

It has been a common observation of modern medicine that a great number of epidemic diseases are parasitic—due to the invasion of the body by a minute organism, or bacillus, and that all of them are probably of this nature. The bacillus of plague has been diligently sought by many observers, especially by Japanese physicians during the Chinese epidemic (when one hundred and fifty thousand died in Canton) and a bacillus has been discovered and cultivated. Whether this bacillus be the veritable cause of the malady, or only an incident of blood decomposition, has not yet been certainly established; but there seems to be no question that the effective causes of plague, the conditions necessary to the multiplication of its bacillus and its virulence and infective activity, are filth, putrefaction and over-crowding.

Fortunately for us the bacillus which answers to the disease has little power of resistance. All antiseptics easily get the better of it. At a temperature of 140 degrees, Fahrenheit, it dies, but it retains vitality in the soil, and this cannot be disinfected; hence in Eastern countries epidemics, favored by a dense population and unsanitary conditions, are perpetuated. The best preventive of plague, as of all other zymotic diseases, is generally considered to be cleanliness. If the disease should succeed in crossing the sanitary barriers interposed and enter Europe or America,

it cannot spread and rage as in Asia, and there should be no alarm.

Undoubtedly plague is less serious than cholera. With cholera we never know where we are. Cholera bacilli may get into the water at the mouth of a river, and may travel up it to its source and thus contaminate a whole country, as was the case in 1866 when the disease broke out at New Orleans and successively attacked every town on the Mississippi river as high up as St. Louis. It is an inexplicable fact that the cholera never travels down stream.

But the plague, like the smallpox, is given by contact alone, and thus it can be isolated and "stamped out." We can not only isolate completely the stricken, but we can burn, or disinfect, the infected places and the disease is soon ended. It does not seem probable that the Bombay pestilence is the plague that swept away one hundred thousand victims in London in the fourteenth century, that slew half the inhabitants of Marseilles in 1720, and proved fatal to ninety per cent. of the persons whom it attacked in Vitlanka, but a bubonic fever, swift and terrible, yet amenable to the resources of modern science.

In medieval Europe the pestilence selected its victims so largely from the indigent and ill-fed classes that it got the name of the "poor's plague." It still retains this character in Asia and the Bombay death lists of the past few months place the results in a striking light. The outbreak first occurred in one of the most squalid quarters of the town and with certain exceptions it has spread to the better-to-do-classes.

Englishmen, whether through a transmitted immunity which they have shared with the nations of Europe since 1841, or from a higher standard of living, or from whatever cause, have enjoyed a freedom from attack so remarkable as to render isolated cases among them quite phenomenal. While the mortality from all causes ran up to seventy-five per thousand in the third week of November, 1896, the general death rate among the well fed natives was under thirty, and among the amply fed Eu-

ropean community only eighteen per thousand.

These returns give a wholly different aspect to the plague from that which it bore in the European cities of the middle ages and bears at this day to the people of Asia. It is no longer a "mysterious visitation of Providence" beyond the control of man, but an indirect product of filth and bad food, commencing among the classes least able to resist the virus and scarcely touching those whose higher standards of life and of generous diet enable them to defy it. The correlation of the plague with poverty opens up serious possibilities during the present scarcity in India. For several months the pestilence was kept pretty well under in Bombay, but it has now spread to other cities, the outbreaks being traced to infection brought from Bombay and the spread to a deficiency of proper nourishment.

The wholesale migration of the inhabitants of Bombay into other towns and countries is a serious aspect of the case. Reuter's Bombay correspondent has telegraphed that "half the population has fled the city," which, if correct, means that three hundred and fifty thousand people, most of them poverty stricken, are already on the drift from the plague center in Western India. The ordinary incubation period of plague being from five to ten days, this period would, of course, afford ample time for traveling to a considerable distance from the place where the malady had been contracted, and it is impossible to ignore the dangers which may arise from an unchecked exodus of infected people.

These dangers, are not so great as would at first sight appear, because the activity of the plague poison seems to be greatly dependent upon the environment of the population into which it is introduced, and a camp of fugitives would require time before the inhabitants could surround themselves with anything at all resembling the accumulation of filth which exist in the native quarters of all great Indian cities, and which are retained there by the resistance, active or passive, of certain

classes of the population to everything in the shape of sanitary improvement.

A deep and special interest attaches to the efforts being made to keep the plague out of Calcutta, where smallpox is now raging in a most violent form. The situation and sanitary conditions of Calcutta at this time would render the pestilence in that city more formidable than in either Karachi or Bombay. The Calcutta population is crowded together in masses of whose density we can scarcely form an idea. While the population of London amounts to 35,905 persons to the square mile, it is said that there is scarcely one of the eighteen Calcutta wards, outside of the European quarter and the garden suburbs, in which the density is under 50,000 per square mile; in many it approaches to or exceeds 100,000 per square mile; while in one ward human beings are huddled together with a pressure that gives a rate of 144,000 to the square mile.

The over-crowding of individual houses, as described in the report of the Medical Committee of Inspection, is even more terrible. A building which could at the utmost accommodate 50 persons properly is made to hold 250. In smaller huts, without windows, the inmates are jammed together until the breathing space is reduced to one-thirteenth of the number of cubic feet necessary for health, even when aided with appliances for ventilation.

The quarantine precautions which are at this time being taken in France, Italy, Belgium, Austria and Russia are apparently inevitable in the present state of knowledge. Yet we must not forget that accurately recorded experience renders it somewhat doubtful in the minds of many whether the contagion is carried by sea-going ships. The plague killed 9,000 persons in Alexandria in 1835; but the exportation of cotton from the Egyptian government warehouses, hotbeds of the infection, went on, in the absence of precaution of any kind, without communicating the disease at the ports to which the bales were consigned. Eight ships were ascertained to have cases of plague on

board, but we are told that "no case of infection occurred among quarantine officers or other persons at the ports of debarkation."

While, therefore, the Continental

governments will naturally resort to defensive quarantine measures, which they are so ready to adopt against contagion from the East, there is no necessity to exaggerate the danger.

FUNERAL REGULATIONS FOR RURAL DISTRICTS.

By J. R. Hunt, M. D.,

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READ BEFORE THE CONFERENCE OF HEALTH OFFICERS, HELD AT BALTIMORE, FEBRUARY 17 AND 18, 1897.

WHO knows the needs of public protection better than the physician? And we as delegates to a Health Conference ought to be well versed in preserving health after hearing the discussions which I see the committee has selected.

I see by the programme that we are to hear all about the diagnosis, cause and prevention of various diseases, but very little to be said about the disposal of the body after you have diagnosed, found the cause, treated and failed to discover any remedy sufficient to prolong life.

Therefore, I shall attempt to deal with Funeral Regulations for Rural Districts. I believe I represent that portion of the State of Maryland wherein some law should be passed for public protection through burials. Situated as we are in a prosperous up-to-date section of Maryland adjacent to this great city and suburban to Washington, both of which have laws that ought to serve as examples, yet, like other more remote parts of the State, it is seemingly a neglected law. No protection, no licensing of undertakers, no restriction as to who shall bury the dead, but simply do-as-you-please method.

Some improvement or adoption of a general funeral law is a necessity whereby the country districts will receive their share and be in keeping with scientific researches of the present day. With increase in population and building up of country towns and villages wherein no laws exist, the needs are greater for protection and at the same time aid in furnishing statistics which are not obtainable today.

We need a law passed by the next legislature compelling undertakers to register, receive a license and to prohibit burials in any part of the State without first obtaining a certificate of death and the cause thereof; also a permit for burial. Such permits to be issued as in large cities by a secretary or some commissioned officer. This to apply to towns and to villages and country districts. Empower the local physician to issue burial permits when the cause of death has been duly ascertained.

The persons issuing permits should keep proper record of deaths, permits issued, and furnish the Secretary of the State Board of Health semi-annually with complete reports and by so doing enable him to publish annually the vital statistics of the State, which have never been published correctly.

Such a law may be opposed as unnecessary, but I have known supposed crime to be covered by the soil and the public none the wiser. Infants have been buried, the cause of death never being ascertained. No post-mortem was held, no physician ever saw the body; no medical service ever secured, no permit for burial issued and its death an unsolved mystery. Thus crime has been committed and gone on so that today the country districts are the best places for the perpetration of such acts, where anybody buries the dead and no law exists to prevent them.

The danger of spreading contagious diseases by public funerals has, as far as I have personal knowledge, been limited, not as a result of care or law, but

public fear. I believe our State Secretary has witnessed almost an epidemic as a result of a public funeral, on the Eastern Shore. While I think there is a law governing this, yet it is not within our power to enforce it because the issuing of permits is not generally required.

The railroads throughout the country have surpassed us in protection by not transporting bodies which have died of contagious diseases. Nor will they transport bodies dying from any other cause from State to State without being hermetically sealed.

So the time now comes when we as protectors of public health should step in and urge the licensing of undertakers, and prevent burials without due record being kept, thus restricting them in the freedom they now possess. We may seem to be interfering with the rights

and privileges of others, but since the undertakers prosper by our losses and we are only benefited by them covering up our errors, we should not hesitate to suggest anything beneficial to ourselves and the public generally, for as the guardians of health we are looked to by the public for protection. Even Ex-President Cleveland admits our superior judgment in his address before the Academy of Medicine in New York recently when he said "You have invaded our benighted contentment and led us out into broad fields of scientific discovery."

Believing this to be of paramount importance to country districts, I hope to see the cause pushed along by the profession leading to success which it rightly deserves, whereby the State will be benefited and the public protected.

THE BACTERIOLOGICAL EXAMINATION OF WATER.

By Wm. Royal Stokes, M. D.,

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READ BEFORE THE CONFERENCE OF HEALTH OFFICERS, HELD AT BALTIMORE, FEBRUARY 17 AND 18, 1897.

ANOTHER series of examinations are conducted in municipal laboratories, which are directed towards the study of the city water supply. Inspection of the various water sources is often of great value, for carefully trained inspectors can often discover nuisances directly contaminating a source of supply, and demand their removal. The chemical examination of water also forms a ready method of detecting the presence of organic pollutions, and the products of bacteria.

The bacteriological investigation of water is also of great importance. Drinking waters have at times been found to contain such pathogenic or disease-producing bacteria, as the bacillus of anthrax and typhoid fever; and during epidemics of Asiatic cholera, the germ of this disease has frequently been found in the water supply. These organisms are generally deposited in the water with human intestinal dis-

charges. If, therefore, we are able to obtain an exact knowledge of the bacterial condition of any water, by means of our tests, these tests must of necessity be adopting means by which the supply may be rendered purer.

The bacteriological examination of water consists in three distinct series of examinations.

First. A careful classification of the various microscopic animalculæ and plants present in the microscopic sediment. This is of value in determining the origin of various unpleasant tastes and odors, or surface contamination of deep wells.

Second. The numerical estimation of the number of bacteria present in one cubic centimeter of water.

There is generally a difference between the bacterial contents of deep wells, and surface or river waters. Artesian wells are often free from bacteria, and pure water from ordinary deep wells

should not contain as a rule more than 100 to 200 bacteria to the cubic centimeter. Stagnant or polluted well or spring water often may contain several thousand bacteria in one cubic centimeter.

It would be a difficult matter to establish any arbitrary standard for the bacterial contents of rivers, since the number of germs present is influenced by such varying conditions as the rainfall, temperature, the exposure to light, the depth of the water, its aeration, and the quantity of organic matter and mineral salts which the water contains.

Many large rivers, however, only contain from 500 to 1000 bacteria per cubic centimeter above the site of large towns, while the same water below such places, which has received the waste from factories, sewers, stables and household drains, may be found to contain from 15,000 to as high as 100,000 germs to the cubic centimeter. These are generally harmless to human beings, as most of the water bacteria perish at the temperature of the human body. Averages taken from numerous observations of this character are often useful in determining the probable presence of pollution from one or all of the sources above named.

The method simply consists in adding one cubic centimeter of the water to be examined to a tube of melted sterile gelatine by means of a graduated glass tube, and then pouring the fluid into a sterile Petri dish. The gelatine becomes solid at the room temperature, and in several days the bacteria appear on the surface as small elevated collections called colonies. These can easily be counted by means of the Lofar colony counter. If the colonies are too numerous, the water can be diluted before adding it to the gelatine.

It has been already mentioned that many disease-producing germs find their way into the water from the intestinal deposits of men or animals. The fecal discharges of men and animals constantly contain a germ known as the bacillus coli communis, or colon bacillus. This can always be recognized, if present, by means of a series of simple

tests, which depend upon the fact that this organism causes the fermentation of the various sugars in a characteristic manner, when dissolved in nutrient bouillon.

Theobald Smith has studied this fermentation and gas production in the fermentation tube and has found that water containing the colon bacillus will always carry out the same definite formula, even in the presence of the other fermentative bacteria of water. He finds that about fifty per cent. of gas is formed in the stem of the fermentation tube containing a two per cent. solution of glucose, or grape sugar, after exposure to a temperature of 35° C. for three days. The gas always consists of one part of carbon-dioxide to two parts of hydrogen and the medium always gives an acid reaction. The same may be said of lactose or milk sugar. Saccharose, or cane sugar, is either not fermented at all, or the same proportion and amount of gas forms very slowly, not reaching its maximum quantity for two weeks. Many other bacteria have been similarly tested, but the fermentation formula never resembles that of the colon bacillus.

We are, therefore, in possession of a fairly exact method of detecting the presence of intestinal contamination and although the colon bacillus may occasionally be present in pure drinking water, yet its detection in quantities as small as from 0.1 to 0.5 of one cubic centimeter of water should lead to a careful inspection of the water source. Waters free from such bacteria can always be obtained, and it is certainly more pleasant to use such a fluid than one which may at any time contain bacteria capable of producing disease.

The use of large sand-bed filters has lately been applied to filtering the water supplies of large towns or cities with remarkable success. The water is forced through this filter until a gelatinous deposit has formed on the surface consisting of myriads of bacteria and microscopic plants called algae. This deposit prevents the further egress of bacteria and by means of this method ninety-eight per cent. of all bacteria are

removed from the water. Most of the organic material present is also oxidized by means of the bacteria in the filter, being converted into harmless nitrates.

The efficacy of these filters in preventing disease has been demonstrated in various large cities. Hamburg during an epidemic of Asiatic cholera developed about five thousand cases of this disease, while Altona, just adjoining it and using the same water supply, was practically free from the disease. The water passed through sand filters before reaching the consumer in Altona, while Hamburg used unfiltered water. The latter municipality has since built a very expensive sand filter bed.

Lawrence, Massachusetts, has practically been free from typhoid fever since the erection of its filter beds, whereas, before this time, the city had been visited by many epidemics of this disease.

This simple method, therefore, rids the water which we drink of many harmful bacteria and its more general adoption can not be too strongly urged.

These methods, together with the examination of sputum for tuberculosis, the determination of the potency of various antitoxines, the examination of blood for the typhoid reaction and of milk for abnormal quantities of pus, constitute most of the work at present performed in municipal laboratories.

DEMONSTRATION OF THE PATHOLOGY AND BACTERIOLOGY OF TYPHOID FEVER.

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READ BEFORE THE CONFERENCE OF HEALTH OFFICERS, HELD AT BALTIMORE, FEBRUARY 17 AND 18, 1897.

DR. FLEXNER, being unable to attend this session, asked me to present this subject and I hope you will pardon me for appearing so unprepared. These specimens are to show the lesions of typhoid fever and the cause of the disease. Typhoid fever is recognized as a disease which is constantly associated with the presence of the typhoid organism. These organisms have seats of preference and usually these parts of the body are most distinctly diseased. It is especially localized in the intestine and particularly those parts that represent lymph structures. The lymph structures in the intestine, as most of you know, consist of small nodules grouped together in patches known as Peyer's and some single ones scattered about in the same region. Besides this localization we have the other lymph tissue in the body also involved.

First let us consider the lesion in the intestine. The first condition that is noted is the swelling of the lymph nodules of the intestine and increase in the elements of the parts. There is an

increase in the number of cells and this hypertrophy shuts off the blood supply of these glands. This causes an anemia of the parts and destruction of the cells, which after their death are thrown off. They become, as we say, necrotic and are thrown off, leaving in their place a depression more or less deep, sometimes simply taking in the inner layer of the mucosa, sometimes taking in more tissue and sometimes going into the muscular layer and even through that. We can divide this condition very well into stages. First, swelling; second, necrosis on account of anemia; and, thirdly, a sloughing off of these necrosed parts, leaving a distinct ulcer, which may go on to complete perforation, or to the formation of scar tissue, which is formed by the proliferation of cells which finally form a smooth scar. The last stage cannot occur if the ulcer is so deep as to perforate the tissues. If in the course of this perforation we have a large blood vessel involved, or even a small one, with subsequent breaking of its continuity, we then have a hemorrhage.

This may lead to a fatal issue. The fourth condition, therefore, occurs only in those cases that recover.

These specimens represent very clearly the first two stages combined and in these three specimens the last stages are shown. In the first you see the Peyer's patch very much enlarged and swollen and the glands around about it are also in the same condition. Here the patches have become necrotic and part of it still shows the slough on the surface. In the second specimen we have the same thing probably slightly more advanced where we have the necrosis and sloughing of the lymph elements. In the last specimen we have the condition of complete necrosis with ulcer formation. You will notice that the floor of the ulcer is smooth and you can see the striae of the muscle. In the lower ulcer you notice a distinct ulceration. I unfortunately cannot bring the fourth stage, that of cicatrization, before you.

These must be recognized as the definite lesions of typhoid fever and very rarely do we have a typhoid fever without them; in fact, a typhoid fever without them may be doubted; still we have other lesions than these; the lymph glands about the intestines and the lymph tissue throughout the body seem to take on some changes, perhaps on account of the poison circulating in the blood. The spleen becomes very large and soft and almost fluctuating at times. The liver shows no distinct lesions except that of cloudy swelling, although there has been noted proliferation of lymph tissue in the liver. The other organs show no changes.

As to the causation of this disease, while the three postulates of Koch have not been proven, namely, to find the organism, to cultivate it, and, by inoculation to produce the disease, there still seems to be no doubt that this organism is the cause of the disease. The failure of the attempt to produce the disease by feeding the animals, or by injection into the lower bowels, is accounted for by saying that no similar disease is known to exist in the lower animals. This organism was first described by Eberth in

1886, but since that time it has been cultivated in all the laboratories of the world. It consists of a bacillus or rod-shaped microbe, very hard to demonstrate, of a size probably not more than one-fifth that of the red-blood corpuscle, and it stains very deeply and uniformly with all our stains. It is a motile organism, its motility being due to flagella, which by their movements cause the organism to go at a headlong gait. It moves across the field of the microscope, as you will see, with a peculiar tumbling motion.

The ordinary methods of diagnosis have become very much confused. The great group of colon organisms are present in the intestine and resemble the typhoid bacillus to a great extent. Some are motile, they stain intensely, they do not produce spores, they grow on the same culture medium and even in the same way that the typhoid organism does. For instance, on milk the colon bacillus acidifies milk in twenty-four or more hours. The typhoid bacillus may do that, but usually does not. The difficulty in diagnosis is (and that is the point I wish to bring out) that the organism may act contrary to the way we expect and not according to the manner in which it was first spoken of. On potato they both grow alike, though the typhoid is not so abundant. The growth of the typhoid bacillus on gelatine was at first thought to be distinct, but so many organisms grow in the same way that now we will not stop to describe that growth.

There is nothing, then, that we could claim to be distinctive of typhoid fever. This has led to experiments to determine some kind of medium upon which the typhoid bacillus would grow in a specific manner and there are some 365 different mediums upon which it can be recognized. These have all given away, however, to one or two, the most prominent of which is that of Elsner. From the myriads of organisms in the intestines he is able to separate out all except the typhoid and colon by means of potassium iodide, and then by means of a culture on potato, he can distinguish between these two. This is a step in

advance, but that which is driving all others out is that which was originated by Pfeiffer. He found that by inoculating animals you could get immunity and that the blood serum of these animals had a peculiar effect upon the organisms. Blood from a patient who had typhoid fever possessed the same power. If these organisms be treated with this blood they gradually come together in little groups and soon disintegrate in the form of small granules, which he called the agglutination, and the breaking up he called its bactericidal properties. This method was not used until ten years after its discovery. This observation of Pfeiffer was a very valuable one. Since that time Vidal has done some important work in this line, but the method used today is very much modified and was first brought out by Wyatt Johnson of Montreal.

A drop of blood is taken from the ear or finger and sent to the laboratory and all they need is a pure culture of the micro-organism and the microscope. This blood when dry is rubbed up with a little sterile water simply to make it fluid and it does not matter what dilution you use. It is added to one drop of typhoid culture and as a matter of practice we generally use a culture of the bacillus coli communis, as well to control the test. These two cultures are placed drop by drop on different slides. They are both put under

the microscope and the alteration occurs almost immediately, though it varies with different blood. You notice at once a slowing down of the organism and its peculiar grouping. There is some attraction of the organism to the group, for they may wander away, but come back again to be subsequently joined to the group which is closest. With the colon bacillus this does not occur. It has been proven that within four to six days after infection has taken place this reaction will be a good one.

Sometimes you will not get the reaction for from one-half to one hour; usually they take, as a working proposition, one hour as a limit. If it does not occur, then they make another test. Dr. Wyatt Johnson had sent to him in Buffalo a number of blood slides marked with a number which he did not know. He was then asked to make the diagnosis. He examined them and at the end of an hour brought in a diagnosis of typhoid in three cases, which subsequently proved to have had it and no reaction in one, which was later shown to have Bright's disease. This was done at the very first meeting in which he brought his method forward. I will be glad to demonstrate this reaction with this blood which Dr. Fulton has just handed me and also with some which I have brought from the laboratory.

HEMIANOPSIA IN ABSCESS OF THE BRAIN.

AN interesting case is related by Lannois and Jaboulay in a recent number of the *Lancet*, in which the prominent symptoms were alexia, agraphia, word-blindness, right-sided hemianopsia and facial paralysis. Ear disease was present and the symptoms pointed to the presence of abscess. No pus was found at first on operating, but three weeks later puncture was again tried and a collection evacuated. Eleven days later the patient died and a large abscess was found in the center of the left occipital lobe and diffuse encephalitis affecting

the central and frontal convolutions of the left hemisphere. There was also a small purulent collection in the third frontal convolution. The points in the case which are of special interest are that pus was not found on the first occasion, a mishap which the writers ascribe to a blocking of the hollow needle with which the puncture was made.

The second point is the presence of hemianopsia and they rightly insist upon the importance of looking for this symptom in all cases of suspected abscess. It is not unfrequently present.

DEMONSTRATION OF THE CHEMICAL EXAMINATION OF DRINKING WATER.

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READ BEFORE THE CONFERENCE OF HEALTH OFFICERS, HELD AT BALTIMORE, FEBRUARY 17 AND 18, 1897.

I FIRST want to make a statement as to what a chemical analysis of water involves. The ordinary idea of it is that it is the same kind of analysis as that done in examining a sample of iron ore in which the test is the same wherever the specimen came from. In the examination of water, however, the circumstances are somewhat different. The chemist takes a very large quantity of water and proceeds to examine for certain substances that are found naturally in water, or are present or produced by chemical means that are not usually present. We find, for example, that urine contains about 5800 parts of chlorine in the million, in the form of common salt. In the case of natural water the amount seldom runs over about 6 parts per million. Our first step, then, is for the estimation of the amount of chlorine in the water and, if we find it exceeds certain limits, we are justified in presuming that the water has been contaminated by some substance containing a large amount of common salt. The next step is the determination of the amount of total solids, which is often a matter of considerable importance. A measured quantity of water is placed in a dish and by heat evaporated to dryness. The amount of mineral matter present is of course of importance in just so far as the substances that make up that mass are of importance. We examine for magnesium sulphate, lime, sodium sulphate, etc.

The most important part, however, of a chemical testing of water for sanitary information is the determination of nitrogenous matter; that is noticed when it is contaminated by animal matter, particularly that of an organic nature. This material, which is introduced into the water, cannot be determined by its taste or odor. A large quantity of the albuminous matter will pass through the ordinary natural filtration without sen-

sible change unless the filter is very thick. The first step then is to boil the water with an agent that decomposes whatever animal matter may be present and converts it into albuminoid-ammonia.

The nitrogenous material generally exists in water as the carbonate. It is treated with alkaline permanganate of potash, and the first change is the formation of free ammonia. The next change is the formation of nitrites and finally the oxidation is complete and it is found in the water in the form of nitrates. The examination then consists in determining the amount and character of residue, the amount of organic matter gotten by evaporation, and we then proceed to study the changes that the organic matter has passed through since being introduced into the water.

Let us take a sample of impure water. This specimen which I prepared contains a small quantity of ammonia, about $\frac{12}{100}$ parts per million. I add a small quantity of Nessler's reagent. In the course of a few minutes you will see that the color of the water has changed entirely. It is now quite yellow and the depth of the color measures the amount of ammonia that was present. We can estimate about one part in 20,000,000. We have here two cylinders and we add to one of them, which is graduated, a mixture containing a known amount of ammonia, the standard being 1500 parts per million. The water has the Nessler reagent added and we then draw off a portion of the darker liquid until we make the colors match and by reading off the figures we can without difficulty detect and estimate the amount up to the limits I have stated.

The next examination is one for nitrites and, if they exist in more than a very small quantity, we condemn the

water entirely, for they indicate that active decomposition is going on. The test is even more delicate than the one I have just shown you. I add the reagent to this water, which contains nitrites, and in the course of a few minutes a red color develops and its depth is measured in the same way as before. It is plain that this process is delicate to the extent of one part in 50,000,000.

Now for the estimation of nitrates. In principle it is done in about the same way. We evaporate a measured portion of water, usually 100 c.c. Add to the residue a mixture of strong sulphuric and carbolic acids and then we add a small quantity of water, and a characteristic color is formed; in this particular case it is yellow. There is one point that I ought to mention; the water I had been using is not a natural water but was prepared for the purpose and is about ten times as strong as that usually found. There is one other test, and that generally used in the so-called popular ways of judging water, and that is the test for chlorine. In the method generally advised you are told to treat the water with silver nitrate and if it becomes pearly, it contains chlorine. That is true, but all water contains some chlorine and it is necessary to estimate the quantity to be of any service to you.

In regard to popular tests; there are quite a number of them but none of them are worth anything. The one by which you test the water with silver nitrate, as I have just said, is useless. Distilled water and properly cleaned

vessels are seldom at your disposal. The best test I know which can be used in the country districts is a modification of any I have ever seen proposed and can be easily applied. The source of contamination is usually a closet, stable or pig-pen, and in these cases the question can be determined frequently by adding about five gallons of coal oil to the suspected place and see if it finds its way into the well. It is not a delicate test, but often it will convince you and your patients of the condition of the well.

Now in regard to filters, and particularly those of the household; they are most of them modifications of the Pasteur filter and consist of a porous vessel through which the water percolates and in that way is purified. They are all very good for a short time but those that cannot be cleaned are bound to be in the end a source of trouble.

The bacteria will find their way through the pores of the filter and unless we can remove a portion of the filter and clean it, the only thing to do is to cleanse it by fire. The back washing does not cleanse a filter sufficiently well to make it safe.

I would like to add one word on a point raised by Dr. Stokes. The chemical examination of water does not show the presence of any specific organism; it is not intended to do that. It does show the fact there has been organic matter present in the water and to some degree the amount of decomposition it has undergone.

GRAVES'S DISEASE TREATED SURGICALLY.

TRICOMI (*British Medical Journal*) reports three cases of Graves's disease in which he removed parts of both lobes of the thyroid with resulting benefit. According to Buschan's figures 98 cases of operation in this disease have been recorded up to now; of these, 26 have not been fully reported with regard to the results, 43 died, 25 improved markedly, 16 were cured. The author's cases were typical, the goiter very prominent,

right lobe larger than left (in one case the median lobe was also developed). Palpitation, exophthalmos, frequent pulse (120 to 130), tremor, etc., were all present. Graefe's symptom was absent. After operation these symptoms disappeared in 2 cases and in the third there was noteworthy improvement. In 2 of the cases the disease had developed after influenza. The author would have recourse to surgical treatment, with confidence, in these cases when all the usual medical resources had failed.

Society Reports.

CONFERENCE OF HEALTH OFFICERS OF THE STATE OF MARYLAND.

HALL OF THE MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

HELD FEBRUARY 17 AND 18, 1897.

SECOND DAY, THURSDAY, FEBRUARY 18.
DAY SESSION.

THE meeting was called to order at 11.15 A. M., by Dr. E. M. Schaeffer, who said: The three fundamental notes of success that have been sounded by the speakers are, first, education; second, legislation; and third, execution. We have been presided over by the Chief Executive of the State, by the majesty of the law, and I now have the honor of presenting the representative of education, Dr. Daniel C. Gilman, President of the Johns Hopkins University.

Dr. D. C. Gilman: I esteem it a very great distinction to be asked to preside over the deliberations of such a body that meets to consider the best interests of the State of Maryland. I do not propose to detain you by any long address but if you will allow me two or three words I will merely express in behalf of those who represent the educational institutions, their gratification at being associated with the men who are engaged in applying knowledge to the promotion of health in the State in which our lives are cast. What is life worth without health? Our pursuit of life and knowledge all vanishes in the absence of health. You gentlemen representing the science of medicine, the calling of teachers and the application of law are capable of bringing about a revolution and I thank you for the call to be here and take part in this most hopeful conference. I have seen no meeting in Maryland in the past twenty years more full of hope and promise.

Dr. L. E. Livingood, in the absence of Dr. Simon Flexner, then gave a DEMONSTRATION OF THE PATHOLOGY AND BACTERIOLOGY OF TYPHOID FEVER. (See page 409.)

Dr. Wm. Royal Stokes then gave a DEMONSTRATION OF A BACTERIOLOGICAL EXAMINATION OF WATER. (See page 407.)

Dr. August Stabler, Brighton: How long does this sand filter last—I mean how long is it a perfect filter and how soon has it to be changed?

Dr. Stokes: That is an important question and I should have spoken of it. The sand does not do the filtering but the bacteria soon form a gelatinous deposit on the sand, and, by preventing the further passage of bacteria, they make a true filter. The filter then can be used year in and year out but has to be occasionally cleaned. This cleaning is necessary about every two or three weeks. The gelatinous deposit is scraped away, the water which was turned off into another channel during the cleaning process is allowed to run in again and another deposit forms.

Dr. John Neff, Baltimore: Will Dr. Stokes please tell us the analysis of Baltimore drinking water?

Dr. Stokes: The average for the past six months has been about 300 bacteria to the c.c. This is a remarkably good showing as compared with the 15,000 of Philadelphia. The test has also been applied to the supply as it reaches the consumer, and I think we have made twenty tests for the colon bacillus but have not been able to find it. Some examiner in Philadelphia was able to determine it in twenty out of twenty-five specimens of drinking water.

Dr. James H. McCormick, Gaithersburg: Relative to the making of sand filters for the large cities and towns the question of cleaning is one that, from an economic standpoint, is of the utmost importance. As Dr. Stokes has said, from three to five weeks is the average life of the filter, when it must be cleaned, and it is not only the cost but the lack of use of the water while the new film is forming. There has been a new filter made, composed of sand and slack, that is used inside of a sand filter. Bacterial examination has proved it to be superior to the sand filter, and, by an automatic appliance, the stream may be reversed

and the filter cleaned out in a few hours, when the water is ready to use. From reports that have been received from Germany recently it is proven that they can be built more cheaply, run more economically and at the same time are more satisfactory.

Professor W. B. D. Penniman then gave a DEMONSTRATION OF THE CHEMICAL EXAMINATION OF DRINKING WATER. (See page 412.)

Dr. Thos. B. Owings, Ellicott City, then read a paper entitled SOURCES AND SPREAD OF TYPHOID FEVER IN THE COUNTRY, in which he said that these are first, and most important, contaminated drinking water; next, general uncleanness of the sick-room and premises. A number of striking cases drawn from personal observations were read, showing the origin of the disease in foul human excreta.

Dr. Stauffer: The question just occurred to me in connection with the last case cited as to how the original inoculation occurred in that hog-pen to develop the typhoid bacillus. The hogs had evidently not had the typhoid and I would like to ask whether in dry seasons the germs cannot be transferred from place to place by the winds and thus contaminate the water.

Dr. J. S. Fulton: In reply to the inquiries just made, one of which seems to be whether the bacillus was indeed the typhoid bacillus, I would say that it is not likely that Dr. Stokes found in the water the typhoid bacillus; in fact, it is rather unlikely, but what he did find was the bacillus that is commonly associated with the typhoid in all drinking water and is taken as the standard of the condition of water, and that is the colon bacillus. That bacillus must have come from some animal, not necessarily the human animal. The carrying of the typhoid germ by the wind is possible of course, but not much stress is usually laid upon it because other ways are so much more common and important. The fact that it can be carried so has been conclusively shown, particularly in this country, at the army posts in the west. It has been observed in new camps that had been previously

uninhabited. The water they use was carried long distances, usually in barrels or cisterns. Typhoid fever has usually occurred in these camps from the recruiting of a new soldier or the arrival of some one who has had the fever. The only parties in the camp not subject to the fever were the officers who drank imported mineral waters and the few Chinamen who used tea and whose water, of course, had been boiled.

Dr. W. R. Stokes: In regard to the case that Dr. Owings described, I may say that the typhoid bacillus is a very delicate organism and it is a difficult matter to grow it from the water supply. It is too long a process to adopt in the routine examination of drinking waters, but it can be done. The organism that I found in the water brought me by Dr. Owings was the bacillus coli communis. I found it present in the water and the fact of the intestinal discharges being present in the water enabled us to say that it was typhoid.

Dr. A. K. Bond: I think sometimes typhoid fever may be contracted from cases not recognized as such. In some of its forms in the adult it is so mild that it cannot be easily diagnosed and the patient may not be considered to have typhoid, but, of course, the stools from such a patient will contaminate the water supply. This is particularly noticeable in the disease in children. I have seen cases of typhoid fever, and I had every reason to believe they were such, in which the disease looked more like bronchitis, and I think they would have been taken for such if they had been isolated cases. Perhaps some of us owe our immunity to the fact that we had it in childhood. I recollect, too, that some years ago Dr. Anderson of Rockville, from down in one of the counties, held, in a paper read before the Faculty, that a typhoid fever epidemic had started in his town after certain streets had been torn up and the ground exposed in a peculiar way. He was laughed at at the time, but the statement chimes in with what Dr. Fulton has said in regard to the camps.

Dr. W. J. Todd, Mt. Washington: I have recently had a young child with

typhoid fever in a family at Mt. Washington. The house was situated high and dry, the water supply was obtained from an artesian well and the head of the house took care of the dairy herself. The symptoms were certainly those of typhoid in a small child, and upon questioning the mother closely as to the other members of the household, I discovered that a nurse had left the house and gone to the city sick. Later on I learned that she had typhoid fever and that for two weeks past she had had a diarrhea and that during that period she had entire charge of the child, so I thought I was safe in attributing the affection to this cause. I would like to ask how young a child or at least what is the youngest age at which any one has seen typhoid fever.

A member: I have seen it from one year up to eighty.

Dr. J. McPherson Scott, Hagerstown. This discussion carries with it the fact that the water we drink ought to be as pure as we can get, and we ought to do something practical at this conference.

As to what age typhoid fever can develop or how often it can occur in the same individual should be discussed elsewhere. After the presentation of the facts we have had from these gentlemen this conference ought to make some suggestion as to caring for the water supply of the State and municipalities. This question of water supply to the municipalities is as important as any that can be presented to the people of Maryland. In Massachusetts there is a law forbidding the act of incorporation unless it carries with it an approved supply of water. I therefore offer this resolution:

Resolved, That the Board of Health present to the Legislature the necessity of such legislation as will require individuals or corporations supplying municipalities with drinking water to adopt such methods of filtration or purification of the water supplied as may be approved by the State Board of Health. Carried.

This resolution was suggested by the statements made by Dr. Stokes as to the reduction of bacteria by filtration

and by some other gentleman that there is a filter in use that is as good and cheaper. Now I know how it is in the towns throughout the State. Individual communities may be unable to get such an act, but it can be passed through the State and this conference ought to endeavor to give the people some degree of security as well as to sit here and enjoy these demonstrations. We are here at the expense of the Counties and the people must see coming from this conference some practical results.

Dr. F. H. Thompson, Annapolis: In speaking to the point I think that what we need in this State is a chemical and pathological laboratory to which the people can send specimens for examination. This is one practical thing for which this conference ought to work.

Professor W. B. D. Penniman: In regard to the proposed motion, which is, as I understand it, that such a law be passed that no water can be supplied except it be filtered, I think that is a good law in certain ways, but is not exactly the way in which we care to put it, for this reason: Take the supply of the city of Baltimore; I had it under my charge for some years. It has undergone examinations that run into the hundreds and at no time have we had reason to believe that it required filtration. If we recommend that all water supplies be filtered it seems to me that we are asking too much. Take for instance the water furnished some of the towns in Maryland that comes from artesian wells; that water does not require filtration, so I would offer this amendment; that no town shall be allowed to furnish water unless the same be approved by the State Board of Health, the latter to have the right of prescribing what means of purification should be used.

Dr. T. A. Councill, Easton: I second the amendment of Dr. Penniman's, but I suggest that they be required to have the water submitted for examination once in thirty or sixty days. I would like to ask Dr. Fulton what provision is made for examination of the water supply of wells and at whose expense this examination should be made.

Dr. Fulton: The State Board of Health has to make the chemical examination without cost to anyone except for the purchase of a container. Send to the Board of Health for a blank directing you how to take the sample of water; send that sample to Dr. Penniman, who pays the expressage, and send the blanks back to the State Board of Health, who authorize the examination. As far as the bacteriological examinations are concerned we have at present no money to apply that way. At present such an examination would have to be at the expense of the individual. In regard to the questions asked by Drs. Stabler and Todd; the question of immunity is a very important one and those of you who have had the disease might be tested by the new method. I think the convention would be glad if Dr. Welch would speak upon that subject.

Dr. W. H. Welch: I must believe that there is a very considerable degree of immunity brought about by a preceding attack. There is no question that a single attack affords some protection against further attacks, but of course it is not sure protection. We have no means of determining whether a patient is or is not susceptible to typhoid fever. This blood reaction is probably not a safe index to the presence of immunity and we have no proof at present that the absence of blood serum indicates any particular susceptibility to typhoid fever. This substance which causes the reaction is certainly not identical with the immunizing substances. As regards the other points that have been under discussion since I came I am not sure as to the wording of the original resolution and would like to hear it read.

Professor W. B. D. Penniman then offered the following amendment, which was accepted.

Resolved, That all water supplied to municipalities or sold to the public generally shall be examined at intervals by the State Board of Health and if found impure shall be filtered or otherwise purified and prescribed by the said State Board of Health.

It was moved and seconded that these

with all other resolutions be referred to a committee of five to be appointed by the chair, the committee to report at the executive session. The chair appointed Dr. J. McP. Scott, Prof. W. B. D. Penniman, Mr. Charles Hartshorn, Dr. Wm. H. Welch, Dr. John S. Fulton.

Dr. Wm. H. Welch: It might be a waste of time now to discuss this resolution, but cannot this committee be instructed also to report upon that other matter, the importance of providing for the bacteriological laboratory or the services of a bacteriologist for the use of the State Board of Health? Dr. Fulton has just said that he has no means for making a complete examination of the water. He can only make the chemical examination and it is well known that the examination ought to be complete to be of any value. It involves also, I think, the visit of an expert to the source of supply to see for himself if there is contamination. If he finds that there is contamination, the other examinations are not necessary.

I would suggest that this committee widen its limitations and bring in suggestions providing for funds or some means by which there shall be placed at the disposal of the State Board of Health the services of a bacteriologist.

Dr. J. H. Billingslea, Westminster: I would like to ask whether it is possible for the smaller towns to put in a filtering apparatus.

Dr. W. R. Stokes: There is a small filter in one of the cities of this State and as they are not very rich I presume it came well within their means.

Dr. August Stabler, Brighton: I would like to ask whether, if I have a case of typhoid fever in my neighborhood, I could apply to the State Board of Health to send an inspector there to properly examine the premises and whether there are means provided so to do.

Dr. Fulton: I regret to say you can not. The only trained inspector in the State Board is the secretary and the Board cannot at present afford to pay even him for that work. It is often not easy to answer all the calls as secretary.

The meeting then adjourned.

MARYLAND Medical Journal.

PUBLISHED WEEKLY.

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MARYLAND MEDICAL JOURNAL,
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BALTIMORE, MARCH 20, 1897.

DR. FRANZ PFAFF and Mr. Alfred W. Balch, student of medicine, have recorded in the *Journal of Experimental Medicine* some very practical work done in the Pharmacological Laboratory of the Harvard Medical School showing the results of an experimental investigation of some of the conditions influencing the secretion and composition of bile.

The subject selected was a female patient with a biliary fistula. Before studying the action of some of the supposed cholagogues, the normal flow of bile with the normal variations was studied. For two days the patient was kept in bed and the flow of bile was accurately measured. The ordinary hospital diet was given, with breakfast at seven, dinner at one and supper at six.

In those two days the bile was collected hourly, on the first day the smallest quantity being between seven and eight in the morning and on the next day between twelve and one A. M. The largest quantity fell on the first day between one and two P. M., and on the second day between twelve

and one. The total quantity collected seemed to be rather constant, about fifteen or sixteen ounces. The specific gravity of the samples collected varied from 1.008 to 1.010, the color was yellowish, a trace of albumen was present, the percentage of solids varied between 1.6 and 1.7 per cent. and the ash between 0.8 and 0.9 per cent. The flow of bile normally varies from hour to hour and even records taken every fifteen minutes show great differences.

To come to the practical part of this investigation, these two observers gave first no medication for three days, then dried human bile for twelve days, no medication for four days, salol for seven days, no medication for two days, corrosive sublimate for seven days, no medication for five days, ox bile for seven days, no medication for five days, calomel for six days, no medication for eighteen days, bile salts for seventeen days and no medication for four days, making a period of ninety-seven days, covering the whole time of dosage. The intervals of no medication were left to lose the effect of each supposed cholagogue and to take observations in the interim. After all these experiments the patient left the hospital with fifteen pounds increase of weight and feeling well with the exception of the biliary fistula.

Reviewing the results of these experiments there was a decided increase in the quantity of bile and at the same time a higher percentage of solids, with human bile, with ox bile and with the mixture of pure bile salts. The result with salol was not decisive, but perhaps there was a slight increased flow with it. Under corrosive sublimate and calomel the flow of bile was, if anything, less than normal. This is against all ideas of the supposed cholagogue effects of calomel. The results obtained with bile or its characteristic salts show an increase in the quantity of bile and a higher percentage of its solids. From their observations these two investigators seem to think that the crude ox bile is the best form in which to give a reliable cholagogue, the salol to be used as coating for these pills to prevent gastric juice action.

In their experiments large doses were used, but in practice a pill of 0.25 gramme (about 4 grains) is of convenient size. Two such pills are given three times a day and it might be well to begin with a small number of pills

and increase the dose according as the condition of the patient demands it. As a cholagogue, crude ox bile is indicated where we wish to cure certain cases of obstinate constipation and increase the absorption of fat.

These experiments are of immense practical value, but they are not yet conclusive until further tested at the bedside and yet the investigators deserve great credit for their painstaking work and such a clear exposition of their methods.

THERE is a new fever of childhood just come to light in country practice, in an epidemic which occurred from 1893 to 1896 about Businessburgh, Ohio. Dr. Korell, in whose practice the ninety-six cases occurred, was apparently either too busy or too modest to report his observations and the whole epidemic with its rare opportunity for clinical study and record would doubtless have been lost to pediatrics had not Dr. West of Bellaire, Ohio, who saw a few of his cases, reported it to the New York Academy of Medicine (*Archives of Pediatrics and Pediatrics* for December, 1896).

His report is of special interest in view of the doubt which has heretofore existed as to whether there is a definite epidemic disease of children corresponding to Pfeiffer's glandular fever. Although several recent standards on pediatrics wholly ignore it and Ashby and Wright think its individuality is not proven, this latest report shows that clinically, at least, glandular fever has a right to recognition as a definite disease.

It is characterized by an incubation of about a week by general debility, considerable fever, intestinal disorder and swelling of the glands along down the neck, first on one side. The mesenteric, axillary and inguinal glands may participate in the swelling. The disease averages two weeks in duration.

There is no evident inflammation of the inside of the mouth, throat, ear or nose. The glands enlarged do not suppurate. They retain distinct outlines and cannot be confounded with the swellings of mumps, which were diagnostically excluded. The swelling in the neck is always tender, often painful, is about as thick as the index finger and runs downwards and forward from just below the angle of the jaw, between the jawbone and the sterno-mastoid muscle to a little beyond

the middle of the jaw; and in the swelling three or four glands could be outlined by the touch. Just as the swelling on one side of the neck is about to subside the other side is apt to become swollen.

There may be stiff neck and disturbance of respiration (which might be fatal), due to the pressure of the swollen glands. No enlargement of the glands remained after convalescence. No death occurred in uncomplicated cases. Treatment did not seem to do any good.

Although clinically an entity, this fever would seem from the records to be a sepsis from the digestive tract. The bowels were either constipated or discharging unwholesome feces. One's thoughts naturally revert to influenza. Was it a form of this protean disease in its abdominal variety? Influenza is quite equal, in one of its freaks, to producing such an epidemic.

Practically, the disease may be taken as a newly-described fever; and until more is known, therapeutics should be directed to a more thorough clearing out of the foul digestive canal than Drs. West and Korell secured.

It is astonishing how long physicians have been contented to use the old-fashioned single and binaural stethoscope without trying to devise some better means of auscultating the internal organs. Ever since the discovery of the transmitter in the telephone attempts have been made to adapt this principle to the stethoscope and it is only in the past year that what is most commonly called the phonendoscope has been used. That it is better than the old stethoscope almost any one will admit, but that it is far from perfect is very evident.

There have been many forms put on the market, all suggested by the original ideas of Bianchi and Bazzi, and they certainly possess many advantages over any other known means of auscultation. They not only allow of auscultation through the clothing, which is at times necessary, but they admit of a much better and clearer mapping out of the internal organs by a sort of auscultatory percussion.

The perfected phonendoscope, which has not yet made its appearance, will probably be a great improvement on anything of the kind which has yet made its appearance.

Medical Items.

We are indebted to the Health Department of Baltimore for the following statement of cases and deaths reported for the week ending March 13, 1897.

Diseases.	Cases Reported	Deaths.
Smallpox.....		
Pneumonia.....		20
Phthisis Pulmonalis.....		23
Measles.....	12	
Whooping Cough.....	1	
Pseudo-membranous Croup and Diphtheria. }	22	3
Mumps.....	7	
Scarlet fever.....	28	1
Varioloid.....		
Varicella.....	1	1
Typhoid fever.....	3	1

Dr. J. E. H. Lewis, Stevensville, Va., died last week, aged sixty-five.

The Missouri State Association will meet in St. Louis, May 18, 19 and 20.

A man in New York was recently arrested and fined five dollars for spitting on the floor of a street car.

The Norwegian Parliament has appointed Dr. Nansen to the chair of Zoölogy in the University of Christiania.

A prominent Chicago lawyer has sued a street railway company for \$50,000, because he was arrested for spitting on the floor.

As a result of the great decrease in the birth rate in Paris, a "repopulation" society has been formed. It is naturally opposed to the Malthusian Society.

The Social Purity League of Topeka, Kansas, is supporting, with some show of success, a bill making the conviction of assaulting women punishable by castration.

According to the Supreme Court of Illinois, no physician is compelled to report contagious disease, or do any other public duty, without special compensation.

Dr. Thomas Owens, a retired naval officer, died in Washington last week, aged sixty-seven. Dr. Owens was born in Baltimore and was graduated from the University of Maryland in 1859.

Dr. J. Chalmers Da Costa has been appointed Clinical Professor of Surgery in the Jefferson Medical College of Philadelphia.

Dr. R. W. Murray, Greenville, Va., has been added to the list of surgeons of the Baltimore and Ohio Railroad Company, vice Dr. J. M. Tate.

Because Kaposi in a lecture in Vienna referred to the connection between pediculi and socialists a mob of the latter (and presumably, too, of the former) collected in front of his house and created an unpleasant disturbance.

Brigadier General George M. Sternberg, Surgeon-General, and Lieut. Colonel David L. Huntington, Deputy Surgeon-General, are detailed to represent the Medical Department of the Army at the Twelfth International Medical Congress to be held in Moscow, Russia, August 19 to 26, 1897.

The New State Board of Health for Virginia consists of the following: Drs. R. W. Martin of Lynchburg; Hugh M. Taylor of Richmond; L. B. Edwards of Richmond; Paul R. Irving of Richmond; J. H. Haff of Harrisonburg; L. E. Harvey of Danville and Mr. Vernon G. Culpeper of Portsmouth.

The Adjunct Faculty of the Baltimore Medical College last week organized a medical society and elected officers as follows: President, Dr. J. M. H. Rowland; vice-president, Dr. W. P. Miller; secretary and treasurer, Dr. C. H. Dixon; executive committee, Dr. C. M. Cook, Dr. W. S. Smith, Dr. E. L. Whitney.

At the last meeting of the State Board of Health it was decided to take charge of the health of Wicomico County at the expense of that county should the Wicomico commissioners persist in their intention to discontinue the local health organization. That county will resent any interference on the part of the State Board.

The Philadelphia *Medical and Surgical Reporter* announces the early completion of a hospital in that city to be devoted to the treatment of diseases of the stomach with a large medical staff, among whom is Dr. Wm. Osler of Baltimore. A correspondent asks why is it necessary to draw on Baltimore for a part of its staff and facetiously suggests the erection of a hospital for the treatment of diseases of bicyclists.

Book Reviews.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by Thomas L. Stedman, M.D., New York City. In Twenty Volumes. Volume X. "Diseases of the Nervous System." New York: William Wood & Co. 1897.

As a rule, the different contributors to a system usually take different views as to the scope of the articles they are to write, but perhaps this volume presents fewer objections on this score than usual, because so much of it comes from one pen, 355 of the 843 pages being contributed by Dr. Joseph Collins of New York. This includes cerebral localization, encephalitis, abscess, cerebral palsies, multiple sclerosis, bulbar paralysis, diseases of the meninges and some minor subjects. Nothing but the very highest praise can be given to Dr. Collins' work. The different articles are encyclopedic, as they should be in a work of this kind, and they will stand for many years as the epitome of our knowledge on the subjects treated of. The literary style is delightful and if all articles in works of this kind were treated in the same conscientious, painstaking manner, "systems" of medicine would be more attractive. The other article of note is the excellent one by Dr. Sachs on Tumor of the Brain. Dana's article on Intracranial Hemorrhage, Embolism and Thrombosis, comprising only about 30 pages, is far too meager a sketch for such a volume, as is also his article on Neurasthenia, two pages only being devoted to treatment. The general practitioner, for whom this book is in the main intended, certainly requires far more specific directions in the management of a case of neurasthenia than can be found in the two pages alluded to.

Féré of Paris contributes two articles, one on Hysteria, the other on Epilepsy. The former of the two is rather unsatisfactory and the latter also disappointing.

The section on speech disturbances by Pershing of Denver is clearly written, but rather from a physiological than from a medical point of view. The last article in the book, Disturbances of Sleep, by Sanger Brown, is brief and of no great value.

On the whole, it may be said that the value of this volume lies in Collins' admirable work.

Current Editorial Comment.

THE DIAGNOSIS OF MALARIA.

The Post-Graduate.

DR. OSLER evidently believes that it requires an expert of the highest order to determine positively the existence or the non-existence of the malarial parasite, in the blood, at an early stage of the disease. An ordinary, well-disciplined house surgeon, according to him, is not to be relied on implicitly for diagnosis, but only an observer who has spent years in the necessary microscopical examinations.

THE NEWER REMEDIES.

Dr. L. Duncan Bulkley, New York.

THE science of medicine is a grand and difficult one and we must not be content with ordering this or that remedy, on however high authority, without understanding the diseased condition we have to meet, and the true nature and uses of the remedy we are to prescribe. All thoughtful men must regret the ready and careless way in which some of the newer remedies have been pushed, too often only for the gain of manufacturers or proprietors, and the profession should make a stand against and show their disapproval of the impudent manner in which many of them have been vaunted for commercial purposes.

NURSES.

Boston Medical and Surgical Journal.

FOR the seriously sick and even for invalids or for the weary, who can afford the expense, there is no greater comfort next to a skillful, cheerful, sympathetic doctor, than a good, cheerful, tidy, sympathetic trained nurse, and we are glad to bear testimony to the very valuable services rendered to individuals and to families by very many such in our country. The fees which such nurses command are doubtless too high for many patients of moderate means; but when we take into consideration the arduous nature of the duties, the intervals of rest which a nurse is forced to take in order to keep her health, and the shortness of the active wage-earning period of a nurse's life, they seem none too large. In so many diseases, especially typhoid fever, the nurse is so much more important than the doctor that to her is very often due the credit of a cure. A good nurse is invaluable.

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PROGRESS IN MEDICAL SCIENCE.

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wisest course to sponge the patient with tepid water every half hour.—EUGENE C. UNDERWOOD, M. D., Louisville, Ky.

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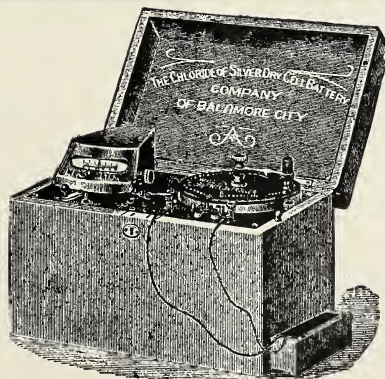
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DOSE—For an adult, one tablespoonful three times a day, after eating; from seven to twelve years of age, one dessertspoonful; from two to seven, one teaspoonful; for infants, from five to twenty drops, according to age.

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In Southern Practitioner, Sept., 1896.

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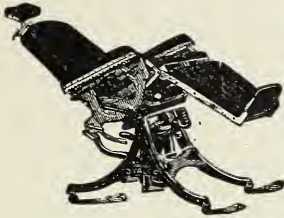


Fig. V—Semi-Reclining.

- 1st. Raised by foot and lowered by automatic device.—Fig. I.
- 2nd. Raising and lowering without revolving the upper part of the chair.—Fig. VI.
- 3rd. Obtaining height of 39½ inches.—Fig. VII.
- 4th. As strong in the highest, as when in the lowest position.—Fig. VII.
- 5th. Raised, lowered, tilted or rotated without disturbing patient.
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- 7th. Arm Rests not dependent on the back for support.—Fig. VII—always ready for use; pushed back when using stirrups—Fig. XVII—may be placed at and away from side of chair, forming a side table for Sim's position.—Fig. XIII.
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Fig. XVII—Dorsal Position.

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